

Figure 1: Block Diagram of Typical Apparatus for Evaluating Ultrasound Scanner

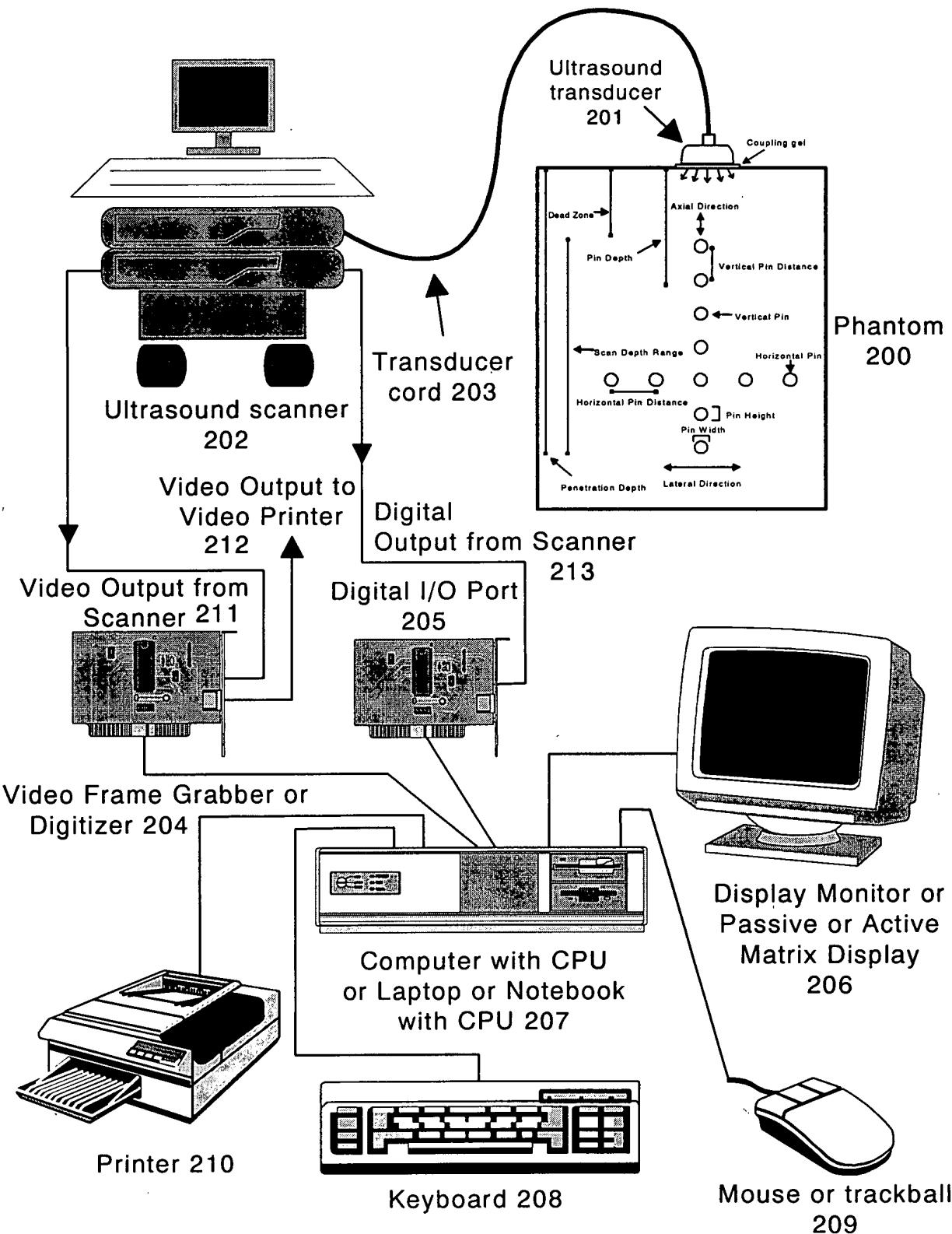


Figure 2. Processing of "Phantom Image"

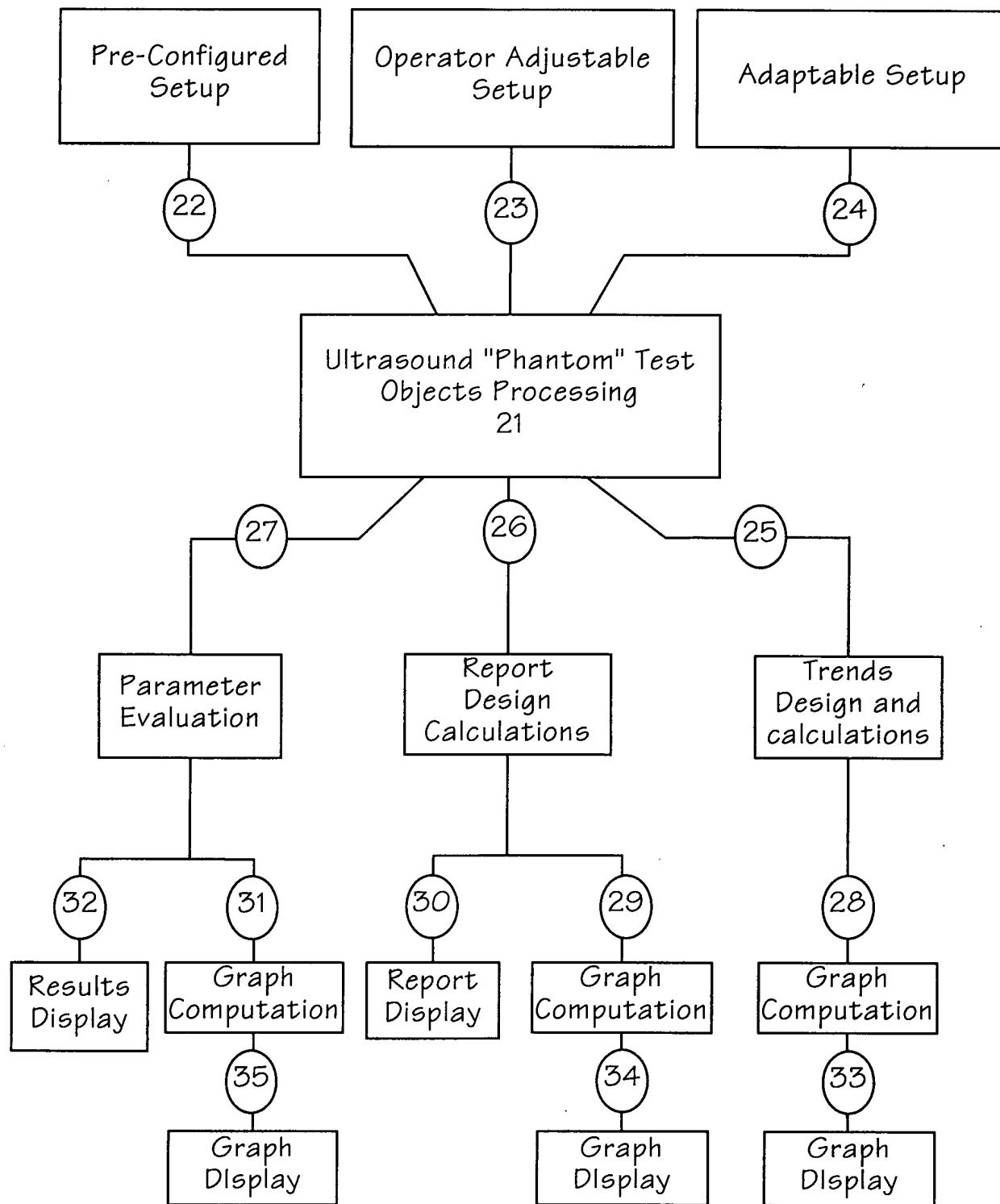


Figure 3. Parameter Evaluation Procedure

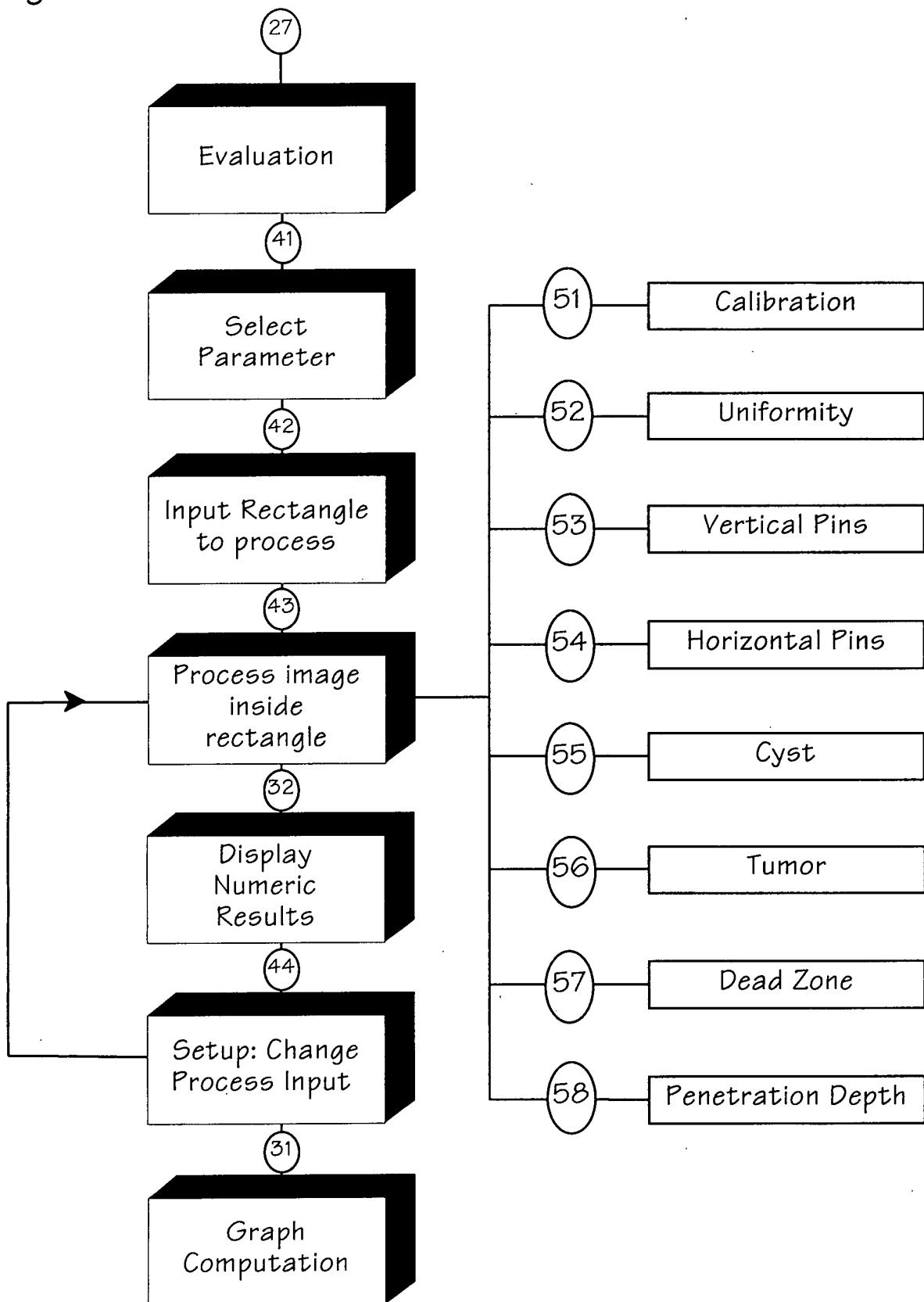


Figure 4. General Schematic-Inputs

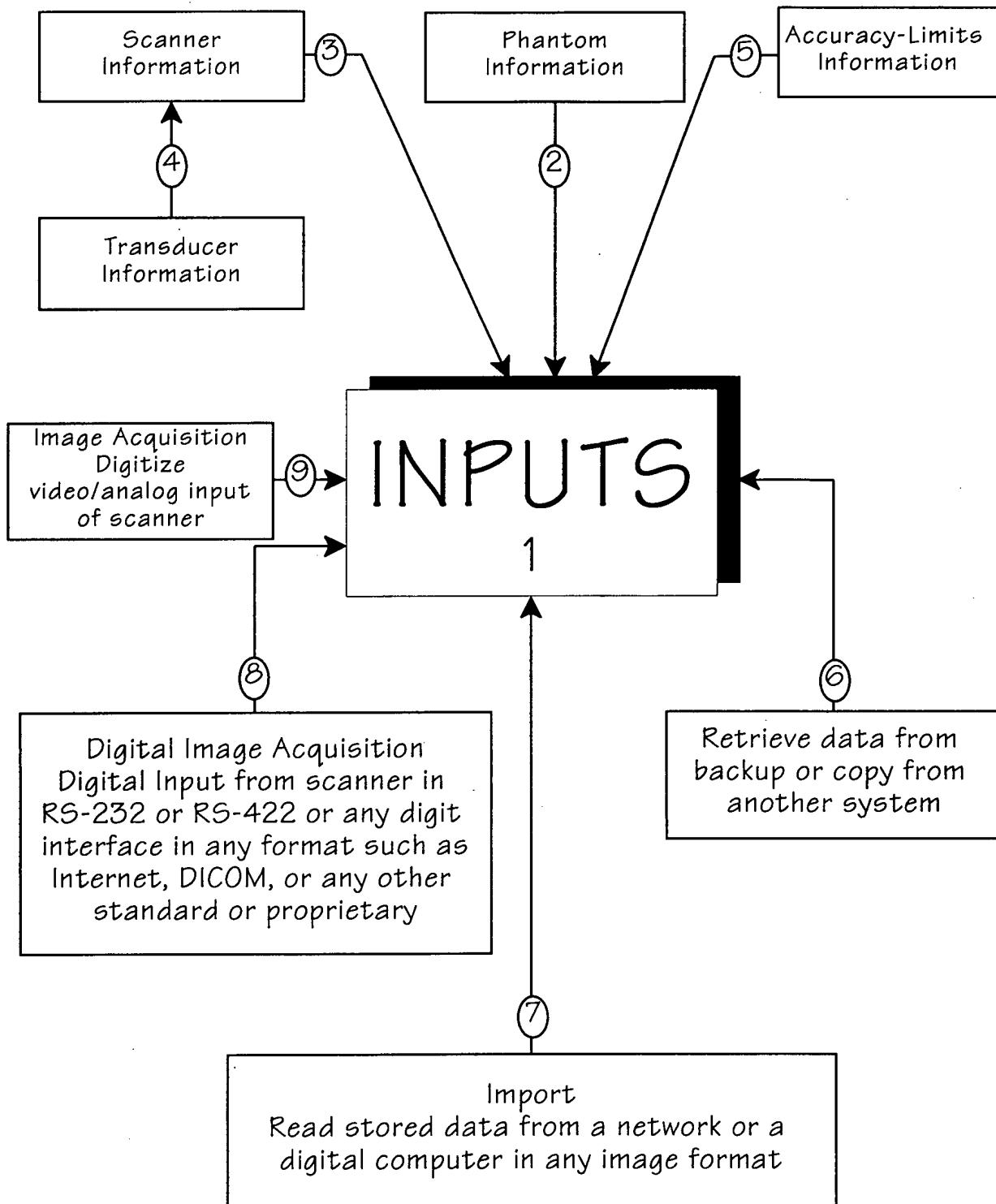


Figure 5. Phantom Test Objects

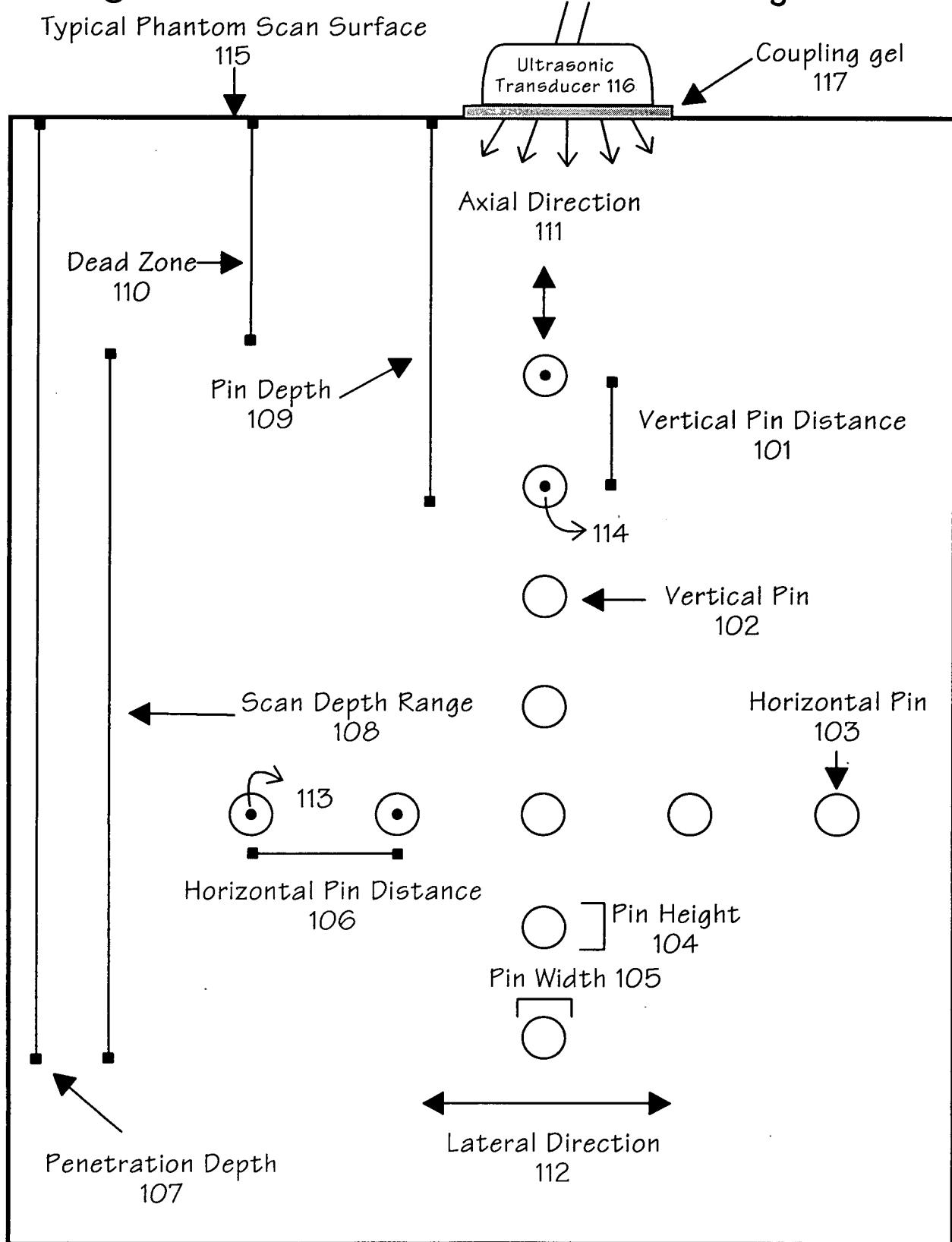


Figure 6. General Schematic-Outputs

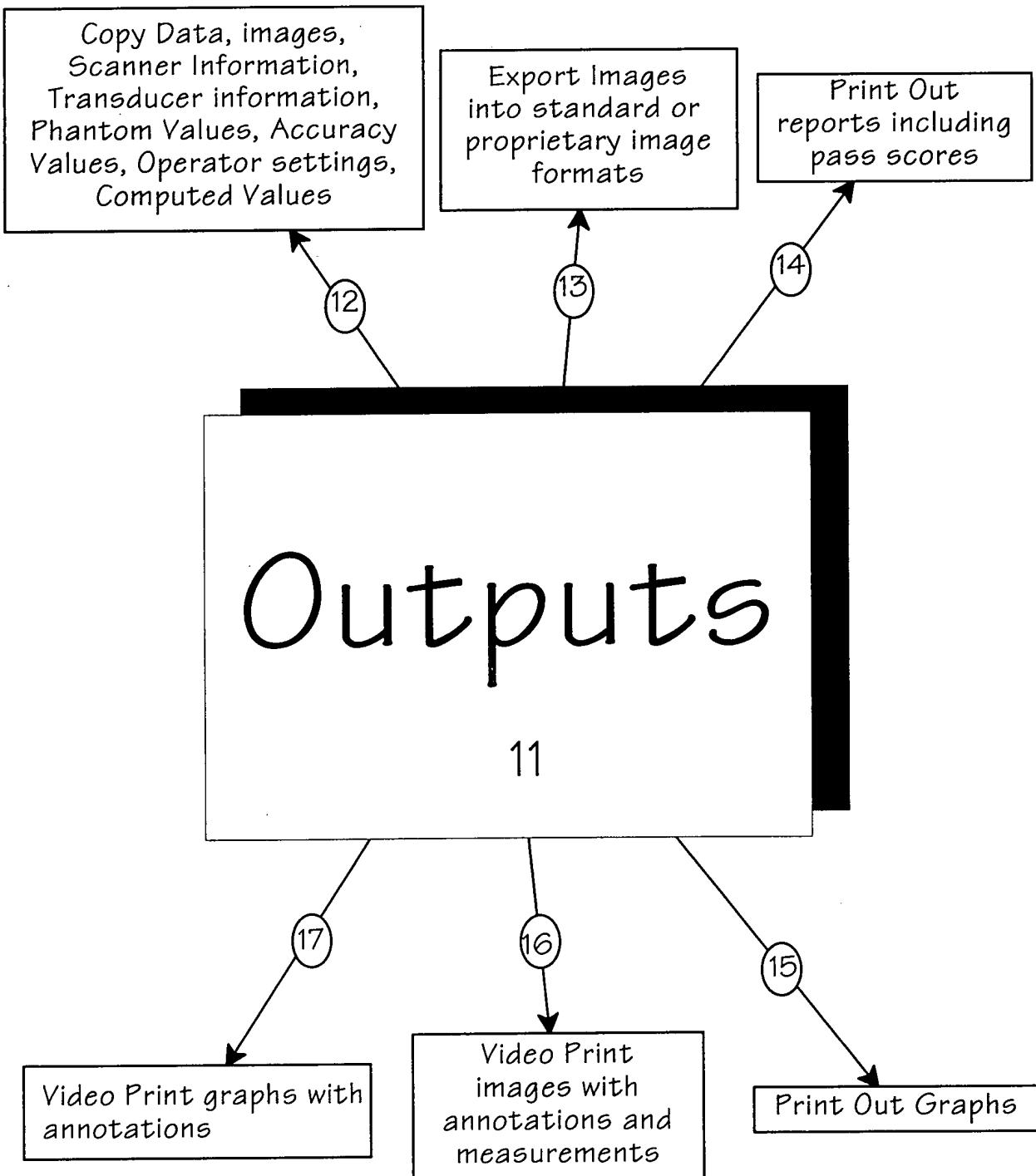


Figure 7: Display Example

In Operation

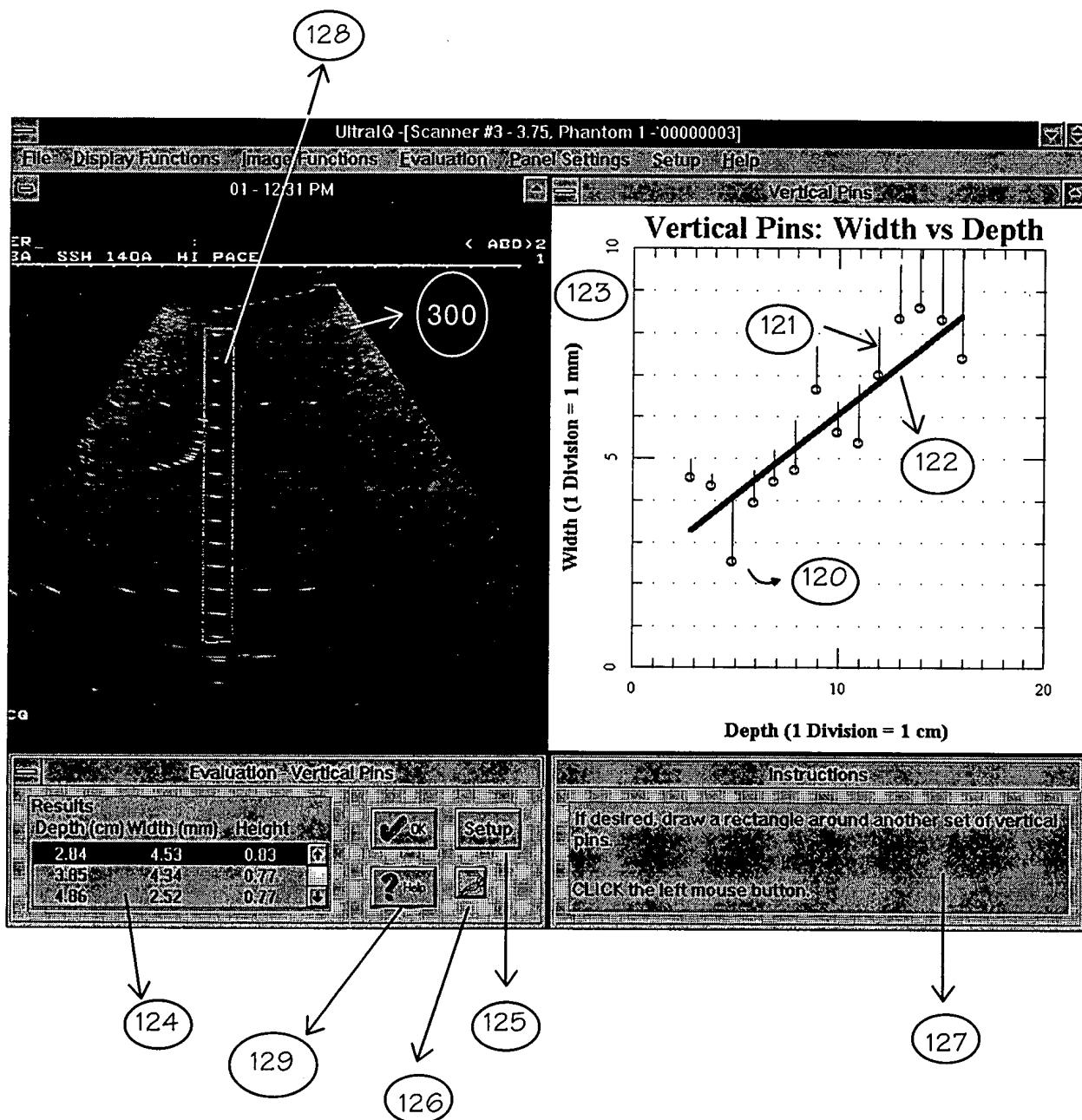


Figure 8. Example of Object Profile

Pin Object Gray Level Profile in Axial Direction

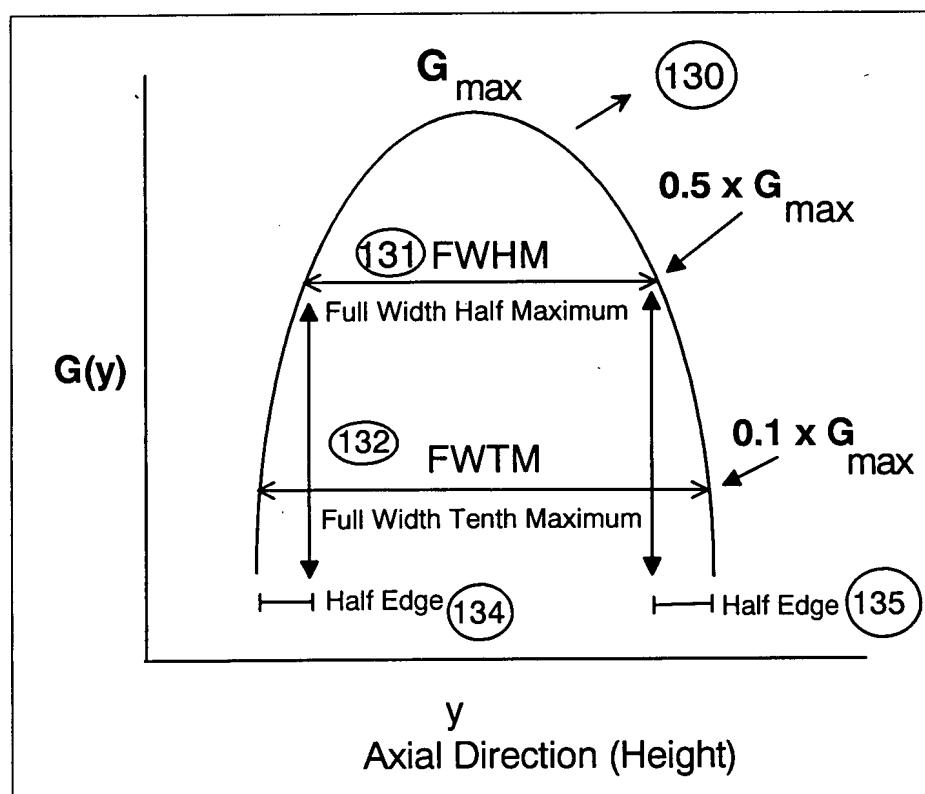


Figure 9. Typical Evaluation Operational Flow Chart

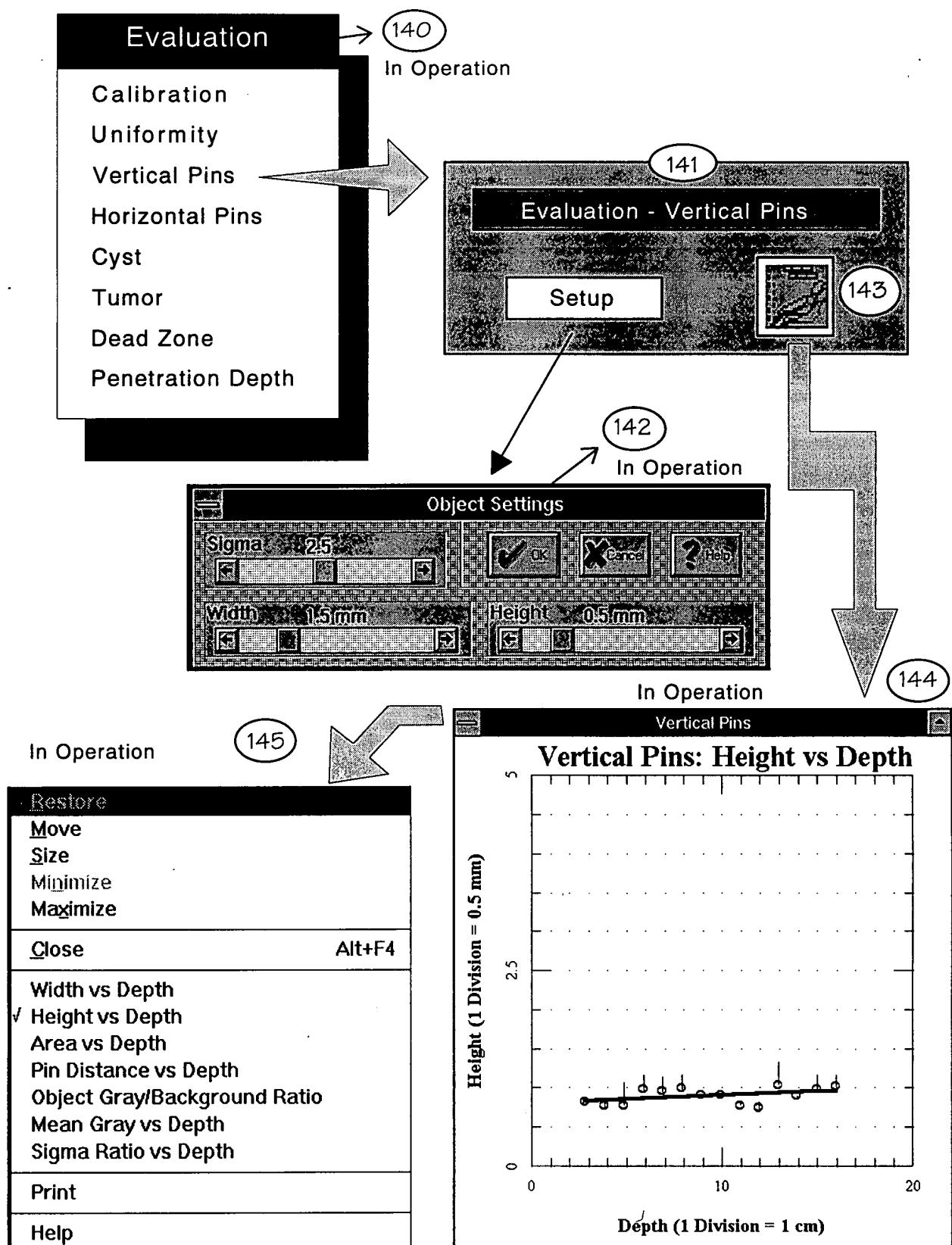


Figure 10. Typical Reports and Trends Operational Flow Chart

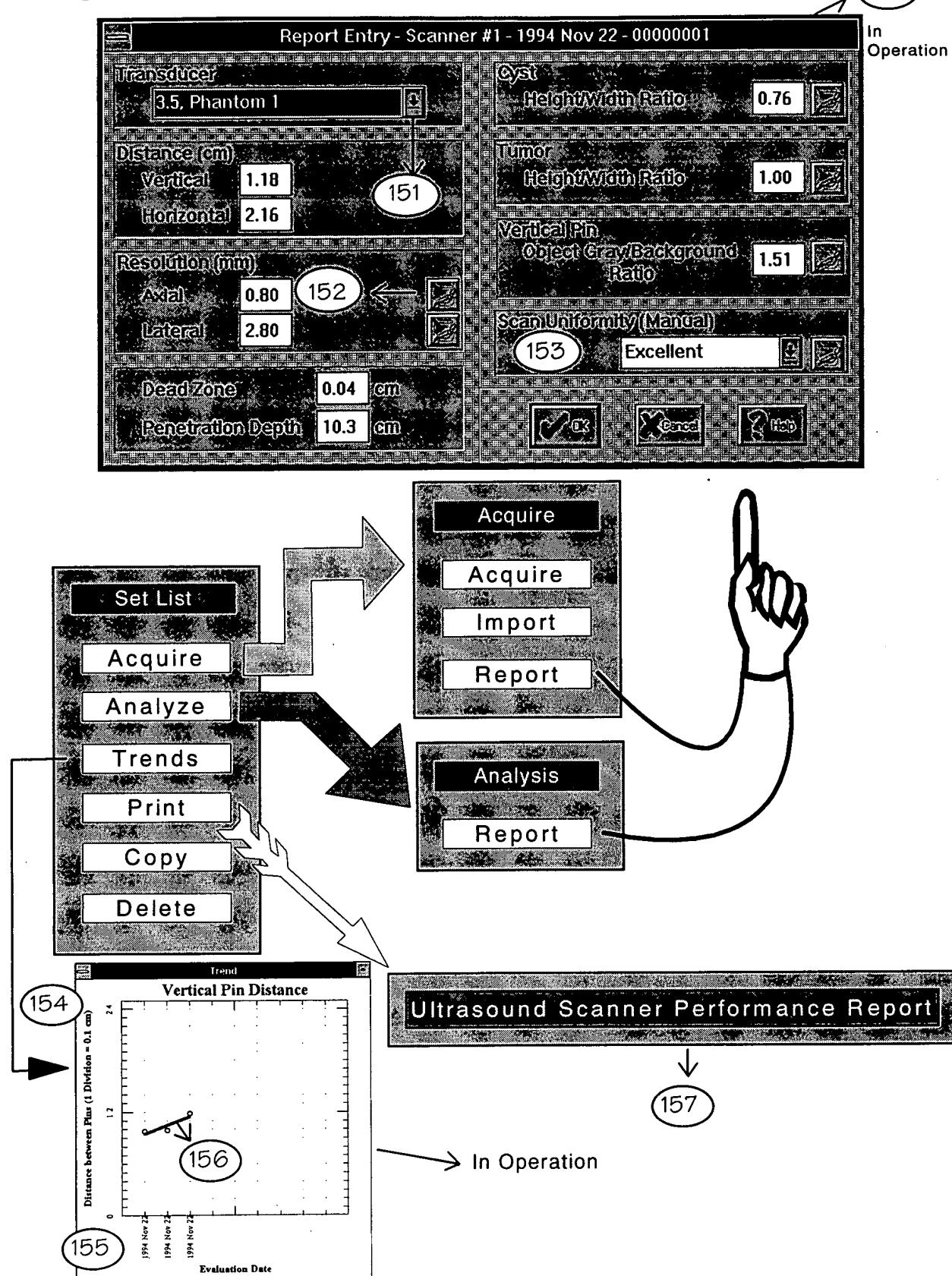


Figure 11. Typical Processing Menus - In Operation

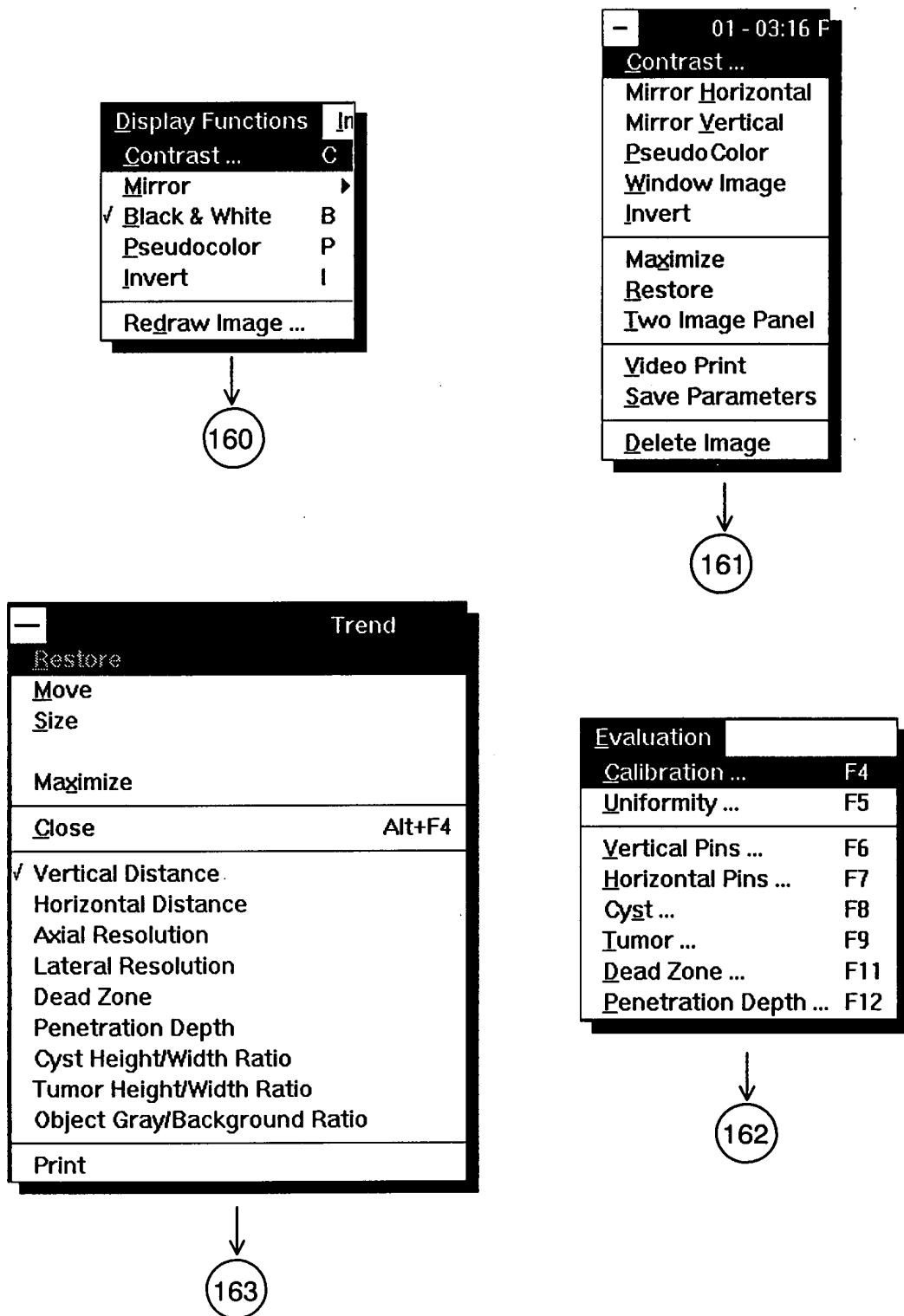


Figure 12. Typical Dialog for Database Access - Operation

Scanner/Transducer List

Scanner	Location	Transducer
Scanner #1	Mississauga	3.5, Phantom 1
Scanner #1	Mississauga	5.0, Phantom 1
Scanner #1	Mississauga	7.5, Phantom 1
Scanner #2	Etobicoke	3.5, Phantom 1
Scanner #3	Markham	3.75, Phantom 1
Scanner #3	Markham	7.5, Phantom 1
Scanner #4	Hamilton	2.5, Phantom 2
Scanner #4	Hamilton	3.75, Phantom 2
Scanner #5	Toronto	3.5, Phantom 2

OK Set List ... New Set ? Help
 Phantom Limits Update Delete

Set List - Scanner #1

Set Date	Set ID
1994 Nov 22	00000001
1994 Nov 22	00000008
1994 Nov 22	00000009

OK
 Acquire
 Analyze
 Trends
 Print
 Copy
 Delete
 Help

Figure 13. Typical Dialog for Accessing Tasks - Operation

Figure 14. Typical Performance Parameters Entry Dialog In Operation

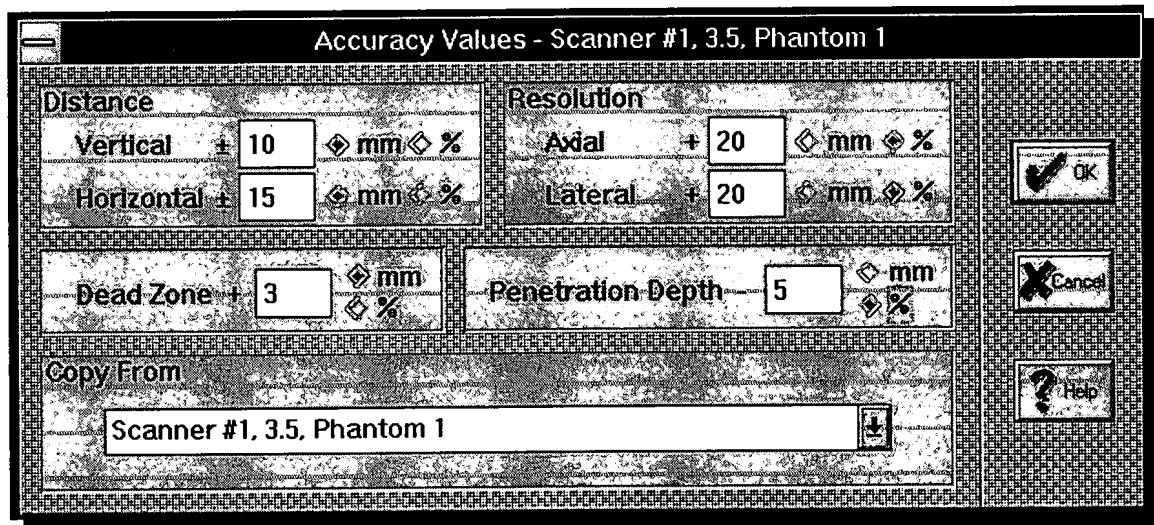
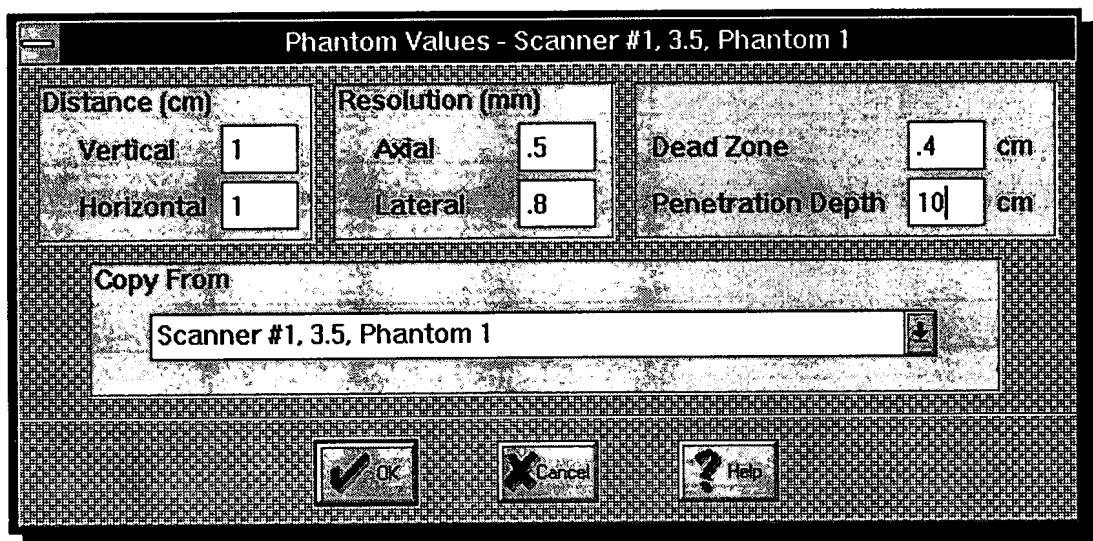


Figure 15. Typical Performance Parameter Limits Entry Dialog - In Operation

Figure 16. Ultrasound Scanner Performance Report

Produced by
Measurements by

VIJAY RAMANATHAN
VIJAY RAMANATHAN

Date: 1995 Feb 20
Date: 1994 Nov 22

Scanner Name:
Manufacturer:
Location:

Scanner #3
Company C
Toronto

Serial #
Model #

S3
A3

Transducer Name:
Distance Accuracy:
Spatial Resolution:
Scan Depth:
ObjectParameters:

3.75, Phantom 1
Vertical Spacing
Axial
Dead Zone
Pin Object Mean Gray to Background Gray Ratio
Cyst Object Mean Height/Width Ratio
Tumor Object Mean Height/Width Ratio
Uniformity/Artifacts

Serial #

TRANS3.75

1.01 cm

Horizontal Spacing

2.12 cm

0.83 mm

Lateral

2.07 mm

0.73 cm

Penetration Depth

16.5 cm

2.27

0.93

0.75

0.75

Scan Quality:

Transducer Name:
Distance Accuracy:
Spatial Resolution:
Scan Depth:
ObjectParameters:

7.5, Phantom 1
Vertical Spacing
Axial
Dead Zone
Pin Object Mean Gray to Background Gray Ratio

Serial #

TRANS7.5

0.99 cm

Horizontal Spacing

1.81 mm

0.72 mm

Lateral

7.6 cm

0.57 cm

Penetration Depth

18.90

* - value to the left is outside acceptable range